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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/570,822

Applicant(s)

DOAN ET AL.

Examiner

Angelica Ruiz

Art Unit

2169

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 09/27/2006.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-34 are pending.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application PCT/AU2004/001676, filed on November 26, 2004. Priority is claimed from application 2003906611, Australia, filed on November 28, 2003.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on September 27, 2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Specification

4. The abstract of the disclosure is objected to because is not in the proper format. Correction is required. See MPEP § 608.01(b).

Applicant is reminded that ABSTRACT OF THE DISCLOSURE: See 37 CFR 1.72(b) and MPEP §608.01(b). A brief narrative of the disclosure as a whole ***in a single paragraph*** of 150 words or less commencing ***on a separate sheet*** following the claims. Further, in an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).

5. The abstract of the disclosure is objected to because all the numbers and enclosing brackets (e.g., 23000, 25000, and 26000) this reference to figures in the abstract is improper. Correction is required. See MPEP § 608.01(b).

Claim Objections

6. Claims 13, 15, 17, 18, 20, 21, and 34 are objected to because of the following informalities:

7. Claims 13, 15, 17, 18, 20, 21 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims) in independent form. Claims 13, 15, 17, 18, 20, and 21 mention "for step (iii)" which is referring to the "step (iii)" on Claim 1, such reference to another step in other claim is improper. Appropriate correction is required

8. Claims 20 and 21 are also objected because of reference to the steps (i) and step (ii) in claim 1, such reference to another step in other claim is improper. Appropriate correction is required

9. Claim 34 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claims 31 to 33. See MPEP § 608.01(n). Accordingly, the claim 34 is not been further treated on the merits.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 11, 13, 15-18, 20, 21, and 31-33 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention.

12. Claims 11, 13, 15-18, 20, and 21 are rejected because of the phrase "zero or more child nodes" which is improperly representing "child" to have a child node you must have "one or more" if "zero" is mentioned then there is no child.

13. Claims 31-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim, also lacks of the steps for performing such method.

Claim Rejections - 35 USC § 101

14. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

15. Claims 31-33 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claimed invention is drawn to "a method of constructing at least one data structure", per se, is considered nonfunctional descriptive

material (MPEP ~ 2106.01). When nonfunctional descriptive material is recorded on some computer-readable medium or stored in a computer-implemented system, it is still not statutory since no requisite functionality is present to satisfy the practical application requirement. Merely claiming storage of nonfunctional descriptive material, i.e. data objects, in a computer-readable medium or in a computerized system does not make it statutory. Such a result would exalt form over substance. *In re Sarkar*, 588 F.2d 1330, 1333, 200 USPQ 132, 137 (CCPA 1978).

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

17. Claims 1-6, 8, 24, 25, 28-29, and 31-33 are rejected under 35 U.S.C. 102(e) as being anticipated by **Prompt et al. (US Publication No. 2006/0020586)**.

As per Claim 1 Prompt discloses:

- A method of presenting data from at least one data source, said method comprising the steps of:

(Abstract and Claim 1, "A computer-implemented method for querying relational data through standard-based hierarchical views, comprising steps of: accessing a first server

from a client; retrieving by the first server first schema stored on at least one relational data source;...””) and (Par [0029], “In accordance with the present invention, several embodiments for presenting the data records of the virtual directory server are disclosed. In one embodiment, the virtual directory is displayed using a browser format. For example, the virtual directory may be presented to a client application as part of a Windows Explorer page. In another embodiment, the virtual directory is displayed using an electronic mail format at a client application. Still, in another embodiment, the virtual directory is presented over a wireless medium and through portable devices.”).

(i) providing a representation of said at least one data source and at least one previous view of said at least one data source;

(Par [0314], “...The DIT can comprise tables, entries and objects representing content and relationships captured and extracted from particular databases. The directory tree can be flat in one embodiment, meaning that the tree has no levels and points directly to specific tables, entries and/or objects. In another embodiment, multilevel hierarchical namespaces can be constructed to “reflect” the relationships that exist between the tables, entities, and objects of the unrelated database. By doing so, different paths of the virtual directory **represent simplified “views” to the data**, thereby allow end-users a more natural way to browse and/or search for information.”).

(ii) identifying at least one compulsory entity in said representation; and

(Par [0207], “...The relationship dialog box 2700 generally requires the source and destination tables or **views to be identified**. When creating relationships

according to one embodiment in accordance with the present invention, it is typically unnecessary to specify which entity is the source and destination because the relationship represents a **combination of the two entities** and not necessarily any priority associated therewith.”), inherently there is "at least one" entity associated with said representation.

(iii) presenting a data structure comprising said at least one compulsory entity and one or more context entities, where said context entities are obtained from said representation using context data obtained from said at least one previous view.

(Title, "System and method for providing access to databases via directories and other hierarchical structures and interfaces") and (Fig. 9). Explaining a view definition for flat hierarchy, complex index hierarchy, and basic index hierarchy.

As per Claim 2, the rejection of claim 1 is incorporated and further Prompt discloses:

- wherein at least one said data source is hierarchical and said data structure is hierarchical.

(Par [0159], "In one embodiment, system 100b includes the VDS application 1054 along with six modules of software according to the present invention. These six modules are described below as the first module 1058, second module 1060, third module 1056, fourth module 1062, fifth module 1064, and sixth module 1068. The first module 1058 is embodied as a program for **extracting and defining schema from any relational data sources** that can be reached using Object Linking and Embedding DataBase (OLE

DB), Open DataBase Connectivity (ODBC), and/or Java DataBase Connectivity (JDBC) software drivers. The second module 1060 is a program that includes processes for building virtual directory definitions using an oriented path derived from a schema for relational data sources, and **represented by a hierarchical sub-directory** of objects in a Directory Information Tree (DIT) structure. The third module 1056 includes a program for enabling browsing of the contents at the client application corresponding to the directory view definitions. The fourth module 1062 includes a program for mapping relational objects, such as tables, columns, attributes, and logical relationships into an external (e.g., XML) format. The fifth module 1064 maps the entities described by the module 1062 into the hierarchical object classes and attributes, which in one embodiment can be for LDAP. The sixth module 1068 includes processes for managing system security using Group access rights, and access control lists for directory entries, which may be implemented by conventionally known techniques. Exemplary functions and implementation for the VDS application 1054, and the first, second, third, fourth, and fifth modules 1056-1064 are described below in more detail.”), “schema” being the “data structure” as claimed.

As per Claim 3, the rejection of claim 1 is incorporated and further Prompt discloses:

- wherein said representation comprises a graphical representation.

(Par [0040], “FIG. 9 is an exemplary graphical representation of a user interface for displaying directory view definitions in accordance with the present invention.”).

As per Claim 4, the rejection of claim 3 is incorporated and further Prompt discloses:

- wherein said graphical representation comprises a schema representation of said at least one data source and said at least one previous view.

(Par [0050], "FIG. 19A illustrates an exemplary graphical representation of a user interface for displaying a representation of the objects and relationships **resulting from a schema being captured in accordance with the present invention**; FIG. 19B illustrates an exemplary shortcut menu; and FIG. 19C illustrates an exemplary toolbar, both of which can be used to provide command selection to the user interface of FIG. 19A.") and (Par [0054] FIG. 23A illustrates an exemplary graphical representation of a user interface for displaying a default flat view in accordance with the present invention; and FIG. 23B illustrates an exemplary graphical representation of a user interface for displaying a default indexed view in accordance with the present invention.") and (Par [0058], " FIG. 27 illustrates an exemplary graphical representation of a user interface for defining relationships in accordance with the present invention.").

As per Claim 5, the rejection of claim 1 is incorporated and further Prompt discloses:

- wherein said context data comprises data evaluated to represent a measure of relevance of said context entities to said compulsory entity.

(Par [0181], "The **schema manager 1058** can also declare **implicit relationships**.

After the schema is captured 1802, undocumented primary keys and relationships, that are implicit in the code but not appearing in the data dictionary, can be declared.") and

(Par [0192], "In order to evaluate missing relationships in the schema manager 1058, having a working knowledge of the underlying database application on which the schema is based is essential. Occasionally, the relationships between objects are not captured in the schema, for example, when some links are created implicitly. This means that the logical relationships may be present in the application, but are not recorded within the database dictionary (i.e., system catalog). Once relationships have been determined to be missing, these relationships can be declared from the schema manager 1058. One manner for doing so, for example, is with the Define Relationships command (i.e., button) 1932 of FIG. 19C. Additional details of relationships are discussed in the section entitled Setting Relationships."). "primary keys" and "relationships" being the "measure of relevance".

As per Claim 6, the rejection of claim 5 is incorporated and further Prompt discloses:

- wherein said context data comprises at least one associated numerical data.

(Par [0191], "By using the **schema manager** 1058, a display name, or alias, can be created for a the primary key. The display name allows the user browsing the directory to be shown more useful information. For example, if the primary key of the Customer table is CustID with an integer attribute type, then a list of numbers will be displayed in the directory tree at run time.").

As per Claim 8, the rejection of claim 2 is incorporated and further Prompt discloses:

- wherein a root node of said at least one hierarchical data structure is an ancestor node of said at least one compulsory entity in said representation.

(Par [0170], "...FIG. 13. In the example of FIG. 13, a new directory view definition is created 1302 by **specifying the schema to use**. To do so, a **default root label** is provided 1304. A specific implementation will later be described in the context of a graphical user interface for clarity of the invention. Based on the relationships between objects as described in the schema specified, the user is allowed to build 1306 a hierarchy. The **hierarchy should preferably be referenced**, and the creation 1308 of a label is a mechanism that works well for this purpose. Input is then received 1310 from the user in order to provide the name of the label. Once the user input is received, the label is created 1312 based on the user input. In response thereto, **a new node is added** 1314 to the tree that represents the directory view. If there are further levels of the directory views to be built, then control is passed back to step 1306 as indicated by 1316. Otherwise, the directory view definition is saved 1318 in the directory view file (i.e., the .dvx file) and (Par [0171], "...For example, such information can include the primary key, relationships with ancestors in the hierarchy, attributes to display, and restrictions, among others, as will be described in more detail later. Control then passes to step 1314, which has already been described.").

As per Claim 24, Prompt discloses:

A computer readable medium, having a program recorded thereon, where the program is configured to make a computer execute a procedure to present data from at least one data source, said program comprising:

(i) code for providing a representation of said at least one data source and at least one previous view of said at least one data source;

(ii) code for identifying at least one compulsory entity in said representation and

(iii) code for presenting a data structure comprising said at least one compulsory entity and one or more context entities, where said context entities are obtained from said representation using context data obtained from said at least one previous view.

(Abstract and Claim 1, "A computer-implemented method for querying relational data through standard-based hierarchical views, comprising steps of: accessing a first server from a client; retrieving by the first server first schema stored on at least one relational data source;...") and (Par [0029], "In accordance with the present invention, several embodiments for presenting the data records of the virtual directory server are disclosed. In one embodiment, the virtual directory is displayed using a browser format. For example, the virtual directory may be presented to a client application as part of a Windows Explorer page. In another embodiment, the virtual directory is displayed using an electronic mail format at a client application. Still, in another embodiment, the virtual directory is presented over a wireless medium and through portable devices.").

(i) (Par [0314], "...The DIT can comprise tables, entries and objects representing content and relationships captured and extracted from particular databases. The directory tree can be flat in one embodiment, meaning that the tree has no levels and points directly to specific tables, entries and/or objects. In another embodiment, multilevel hierarchical namespaces can be constructed to "reflect" the relationships that exist between the tables, entities, and objects of the unrelated database. By doing so, different paths of the virtual directory **represent simplified "views" to the data**, thereby allow end-users a more natural way to browse and/or search for information.").

(ii) (Par [0207], "...The relationship dialog box 2700 generally requires the source and destination tables or **views to be identified**. When creating relationships according to one embodiment in accordance with the present invention, it is typically unnecessary to specify which entity is the source and destination because the relationship represents a **combination of the two entities** and not necessarily any priority associated therewith."), inherently there is "at least one" entity associated with said representation.

(iii) (Title, "System and method for providing access to databases via directories and other hierarchical structures and interfaces") and (Fig. 9). Explaining a view definition for flat hierarchy, complex index hierarchy, and basic index hierarchy. And further Prompt discloses:

(Par [0155], "...The instructions and/or data may **comprise code for performing any and/or all of the techniques described herein**. These modules 1050-1070 are

coupled by bus 1020 to the processing unit 1010 for communication and cooperation to provide the functionality of the system 100b....”).

As per Claim 25, the rejection of Claim 24 is incorporated and further Prompt discloses:

- wherein at least one said data source is hierarchical and said data structure is hierarchical

(Title, “System and method for providing access to databases via directories and other hierarchical structures and interfaces”) and (Fig. 9). Explaining a view definition for flat hierarchy, complex index hierarchy, and basic index hierarchy.

As per Claim 28, Prompt discloses:

- Computer apparatus for constructing at least one data structure from at least one data source, said apparatus comprising

(Par [0083], “The present invention also relates to an apparatus for performing the operations herein. This apparatus may be specially constructed for the required purposes, or it may comprise a general-purpose computer selectively activated or reconfigured by a computer program stored in the computer. Such a computer program may be stored in a computer readable storage medium...”) and (Par [0123], “...The DirectoryView Designer.TM. interface is used to **construct the objects** in the virtual directory tree structure. Each object can represent a call to a relational database system table or view. By using container objects, that is, objects that do nothing themselves but

contain references to other objects, a group of calls to related and/or unrelated heterogeneous databases that contain related data can be aggregated.”).

a first constructing module configured to construct a representation of said at least one data source and at least one previous view of said at least one data source;

(Par [0182], “Additionally, the schema manager 1058 provides the option of using a default view in place of constructing a view by using the second module 1060 (as will be described in the next sub-section). Derived views, which are views based on one attribute in a table (e.g., a postal code) can also be constructed using the schema manager 1058.”) and (Par [0258], “Reference is made to the block diagram of FIG. 42, illustrating one example for implementing the second module...”)

an identifying module configured to identify at least one compulsory entity in said representation; and

(Par [0267], “Reference is now made to FIG. 5A, where one embodiment of system 100b is shown. In the embodiment of FIG. 5A, system 100b includes server 406a, which in turn is further described in FIG. 6A as having a first module 602 and the SmartBrowser 604. Under the control of the first module 602, the server 406a communicates with client computer 402a. For example, the first module 602 may be an Internet Information Server (IIS), or equivalent web application server that operates in a run-time environment...”).

a second constructing module configured to construct said at least one data structure comprising said at least one compulsory entity and one or more

context entities, where said context entities are obtained from said representation using context data obtained from said at least one previous view.

(Par [0123], "...The DirectoryView Designer.TM. interface is used to construct the objects in the virtual directory tree structure. Each object can represent a call to a relational database system table or view. By using container objects, that is, objects that do nothing themselves but contain references to other objects, a group of calls to related and/or unrelated heterogeneous databases that contain related data can be aggregated.").

(Par [0080], "...Furthermore, it has also proven convenient at times, to refer to certain arrangements of steps requiring physical manipulations of physical quantities **as (modules)** code devices, without loss of generality...").

As per Claim 29, the rejection of claim 28 is incorporated and further Prompt discloses:

- wherein at least one said data source is hierarchical and said at least one data structure is hierarchical.

(Par [0083], "The present invention also relates to an apparatus for performing the operations herein. This apparatus may be specially constructed for the required purposes, or it may comprise a general-purpose computer selectively activated or reconfigured by a computer program stored in the...") and (Title, "System and method for providing access to databases via directories and other hierarchical structures and interfaces") and (Fig. 9). Explaining a view definition for flat hierarchy, complex index hierarchy, and basic index hierarchy.

As per Claim 31, Prompt discloses:

A method of constructing at least one data structure substantially as described herein with reference to any one of the embodiments as that embodiment is illustrated in the drawings.

(Abstract) and (Par [0123], "...The DirectoryView Designer.TM. interface is used to construct the objects in the virtual directory tree structure. Each object can represent a call to a relational database system table or view. By using container objects, that is, objects that do nothing themselves but contain references to other objects, a group of calls to related and/or unrelated heterogeneous databases that contain related data can be aggregated.").

As per Claim 32, the rejection of claim 31 is incorporated and further Prompt discloses:

A computer readable medium having a computer program recorded thereon and adapted to make a computer execute the method according to claim 31.

(Abstract) and (Par [0155], "...The instructions and/or data may comprise code for performing any and/or all of the techniques described herein. These modules 1050-1070 are coupled by bus 1020 to the processing unit 1010 for communication and cooperation to provide the functionality of the system 100b...") and (Par [0078], "A system, method, computer medium and other embodiments for locating, extracting and

transforming data from unrelated sources of information into an integrated format that may be universally addressed over network systems are described.”).

As per Claim 33, the rejection of claim 31 is incorporated and further Prompt discloses:

Computer apparatus for constructing at least one data structure according to the method of claim 31.

(Abstract) and (Par [0083], “The present invention also relates to an apparatus for performing the operations herein. This apparatus may be specially constructed for the required purposes, or it may comprise a general-purpose computer selectively activated or reconfigured by a computer program stored in the computer.”).

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 7, 9, 19, 22, 23, 26, 27 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Prompt et al. (US Publication No. 2006/0020586)**, in view of **Szabo et al. (US Publication No. 2007/0156677 A1)**.

As per Claim 7, the rejection of claim 6 is incorporated and further Prompt does not disclose:

- wherein said at least one associated numerical, data comprises occurrence and joint- occurrence frequencies of entities in said representation observed in said at least one previous, view.

However Szabo discloses the above mentioned limitations as follow:

(Par [0255], "It is known in the art of search engines to rank objects according to their quality, and therefore to prioritize the objects, for example an ordered presentation, based on this quality, independent of content. The object need not be a document or text, and in fact may be, for example, a domain, record or other source. The quality factor itself may be, e.g., investment in site, frequency of visits, duration of visits, hyperlinks, or human editor's opinion of quality. On the other hand, objects may also be ranked according to their relevance to a particular problem, i.e., in content or context-sensitive manner, by such **techniques as counting the frequency of key words**, proximity of key words, the appearance of key words in title or key word field, or by constructs that attempt to measure conceptual relevance semantically. In both cases, the particular factor or factors stressed by a search engine will differ, and these differences contribute to the distinctive response or "personality" of a search engine. One embodiment of the present invention, therefore, advantageously employs both types of classification data in order to determine the ranking of a record corresponding to a query.").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention was made to incorporate the teachings of Szabo into the method of Prompt to take advantage of frequency of occurrence. The modification would have been obvious because one of the ordinary skills in the art would implement the frequencies associated with the context of text to represent the closest approach and provide to the user the most relevant data.

As per Claim 9, the rejection of claim 2 is incorporated and further Prompt discloses:

- wherein said at least one hierarchical data structure is assigned a score equal to the occurrence probability of a root node given the occurrence of each of said at least one compulsory entity.

(Par [0159], "In one embodiment, system 100b includes the VDS application 1054 along with six modules of software according to the present invention. These six modules are described below as the first module 1058, second module 1060, third module 1056, fourth module 1062, fifth module 1064, and sixth module 1068. The first module 1058 is embodied as a program for **extracting and defining schema from any relational data sources** that can be reached using Object Linking and Embedding DataBase (OLE DB), Open DataBase Connectivity (ODBC), and/or Java DataBase Connectivity (JDBC) software drivers. The second module 1060 is a program that includes processes for building virtual directory definitions using an oriented path derived from a schema for relational data sources, and **represented by a hierarchical sub-directory** of objects in a Directory Information Tree (DIT) structure...").

However Prompt does not disclose:

- assigned a score equal to the occurrence probability of a root node given the occurrence of each of said at least one compulsory entity.

On the other hand Szabo discloses the claimed feature above as follow:

(Par [0074], "Various schemes can be utilized to further weight and balance the **relevancy scores derived from term frequency and term proximity**. While a number of such schemes are known, the schemes operate on the reasonable and necessary premise that all relevant documents need to be initially identified from the collection before a final relative relevancy score can be computed. The relative relevancy is then calculated based on the full set of query identified documents. Thus, existing search systems cannot effectively operate against a document collection index that, due perhaps to size or to support parallel access, is fragmented over multiple server systems or against multiple collection indexes that are served from multiple distributed servers. Furthermore, to determine if the proper, consistent ranking of the full set of query identified documents produce the **ranking scores**, conventionally they must be calculated over the full set of identified documents. Large amounts of information must therefore be pooled from the potentially multiple index servers in order to perform the aggregate relevancy scoring. Consequently, the convenience, as well as capacity and performance, potentially realized by use of distributed servers is not generally realized in the implementation of conventional search systems.").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention was made to incorporate the teachings of Szabo into the method of Prompt

to associate occurrence probability to the hierarchical data structure. The modification would have been obvious because one of the ordinary skills in the art would implement the probability to represent the closest approach and provide to the user the most relevant data.

As per Claim 19, the rejection of claim 1 is incorporated and further Prompt discloses:

- wherein said compulsory entity represents one of:

(i) a location of one or more search keywords; and

(Par [0104], "With the model of searching, the user either knows precisely or can ascertain via the use of attributes and keywords the item of interest. With either technique, the user generally provides a filter to find a specific object that meets the particular criteria by searching according to attributes. This approach provides a pattern of direct access to data and favors a flat hierarchy, an example of which is the White Pages.").

(ii) a user-selected entity.

(Par [0168], "...In FIG. 14a, a user working at a client application 402 selects 1402 a relational data source. In response to the selection made, schema extraction of the objects and relationships is made by module 1058. In doing so, **the entities in the data source are determined 1404 based upon the selection received**. Each entity that is determined is translated 1406 to an object class...").

However Prompt does not specifically discloses "location"

On the other hand Szabo discloses the above mentioned feature as follow:

(Par [0233], "...In a further refinement, search results found through a query outside the directory, for example through a metasearch process, can be organized under directory headings. In this case, the directory may be queried as to whether and where it references a web resource, and if it does, the resource(s) may be saved to that (those) locations; if the directory does not reference the resource, appropriate directory classification headings may be still be found by analyzing the resources and extracting from them concepts and keywords, the directory then being queried as to where in its taxonomic structure such concepts or keywords may be found".).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention was made to incorporate the teachings of Szabo into the method of Prompt to associate occurrence probability and location. The modification would have been obvious because one of the ordinary skills in the art would implement the probability to represent the closest approach and provide to the user the most relevant data.

As per Claim 22, Prompt discloses:

A method of construction and presentation of data for a keyword searching operation in at least one data source involving at least one search keyword, said method comprising the steps of:

(Abstract and claim 1, "A computer-implemented method for querying relational data through standard-based hierarchical views, comprising steps of: accessing a first server from a client; retrieving by the first server first schema stored on at least one relational data source; translating the first schema into second schema, wherein the second

schema includes the relational data having a hierarchy; maintaining a virtual representation of the hierarchy; and providing the virtual representation at the client.") and (Par [0103], "A directory can help to manage the scope of diverse information and to facilitate the search for information via the abstraction of aggregated data. There are at least two significant ways to use a directory, namely for searching and browsing, each of which will now be discussed as having a strong and distinct relationship with the way that users access for information and with the access paths that are used to obtain the data that is needed.").

(i) constructing a graphical representation of said at least one data source and at least one previous view of said at least one data source;

(Par [0314], "...The DIT can comprise tables, entries and objects **representing content and relationships** captured and extracted from particular databases. The directory tree can be flat in one embodiment, meaning that the tree has no levels and points directly to specific tables, entries and/or objects. In another embodiment, multilevel hierarchical namespaces can be constructed to "reflect" the relationships that exist between the tables, entities, and objects of the unrelated database. By doing so, different paths of the virtual directory **represent simplified "views" to the data**, thereby allow end-users a more natural way to browse and/or search for information.") and (Par [0050], "FIG. 19A illustrates an exemplary **graphical representation** of a user interface **for displaying a representation** of the objects and relationships resulting from a schema being captured in accordance with the present invention; FIG. 19B illustrates an

exemplary shortcut menu; and FIG. 19C illustrates an exemplary toolbar, both of which can be used to provide command selection to the user interface of FIG. 19A.”).

(ii) identifying at least one compulsory entity in said graphical representation, where said compulsory entity is a node in said graphical representation representing a location of one or more said at least one search keyword;

(Par [0207], “...The relationship dialog box 2700 generally requires the source and destination tables or **views to be identified**. When creating relationships according to one embodiment in accordance with the present invention, it is typically unnecessary to specify which entity is the source and destination because the relationship represents a **combination of the two entities** and not necessarily any priority associated therewith.”) and (Par [0172], “...Tree is generated 1508. **Each node describes the information needed to query** the database 106. Thereafter, the definition is saved 1510 in a directory view file (i.e., the dvx file”), inherently there is “at least one” entity associated with said representation.

(iii) constructing at least one data structure comprising said at least one compulsory entity and one or more context entities corresponding to at least one search keyword, where said context entities are obtained from said graphical representation using context data obtained from said at least one previous view; and

(Par [0123], “...The DirectoryView Designer.TM. interface is used to construct the objects in the virtual directory tree structure. Each object can represent a call to a

relational database system table or view. By using container objects, that is, objects that do nothing themselves but contain references to other objects, a group of calls to related and/or unrelated heterogeneous databases that contain related data can be aggregated.”).

(iv) presenting said at least one data as result of said keyword searching operation.

(Title, “System and method for providing access to databases via directories and other hierarchical structures and interfaces”) and (Fig. 9). Explaining a view definition for flat hierarchy, complex index hierarchy, and basic index hierarchy.

However Prompt does not specifically teaches:

- node in said graphical representation representing a location

On the other hand Szabo discloses the above mentioned limitation as follows:

(Par [0428], “Many XPointers locate individual nodes in an element tree. However, some location terms can locate more complex sets of data. For example, a string match may locate only a portion of a node, and an XPointer containing the span location term (called a spanning XPointer) can reference sub-resources that do not constitute whole elements.”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention was made to incorporate the teachings of Szabo into the method of Prompt to associate occurrence probability and location. The modification would have been

obvious because one of the ordinary skills in the art would implement the probability to represent the closest approach and provide to the user the most relevant data.

As per Claim 23, the rejection of claim 22 is incorporated and further Prompt discloses:

- wherein at least one said data source is hierarchical.

(Title, "System and method for providing access to databases via directories and other hierarchical structures and interfaces") and (Fig. 9). Explaining a view definition for flat hierarchy, complex index hierarchy, and basic index hierarchy.

As per Claim 26, being the computer readable medium claim corresponding to the Claim 22, the rejection of Claim 22 is incorporated and further Prompt discloses:

(Par [0155], "...The instructions and/or data may comprise code for performing any and/or all of the techniques described herein. These modules 1050-1070 are coupled by bus 1020 to the processing unit 1010 for communication and cooperation to provide the functionality of the system 100b...").

As per Claim 27, the rejection of claim 26 is incorporated and further Prompt discloses:

- wherein at least one said data source is hierarchical and at least one said data structure is hierarchical

(Title, "System and method for providing access to databases via directories and other hierarchical structures and interfaces") and (Fig. 9). Explaining a view definition for flat hierarchy, complex index hierarchy, and basic index hierarchy.

As per claim 30, being the apparatus claim corresponding to the method of claim 22, respectively and rejected under the same reason set forth in connection of the rejection of Claim 22 and further Prompt discloses:

(Par [0083], "The present invention also relates to **an apparatus for performing the operations** herein. This apparatus may be specially constructed for the required purposes, or it may comprise a general-purpose computer selectively activated or reconfigured by a computer program stored in the computer...") and

(Par [0080], "...Furthermore, it has also proven convenient at times, to refer to certain arrangements of steps requiring physical manipulations of physical quantities **as (modules)** code devices, without loss of generality...").

Allowable Subject Matter

20. Claims 10-18 and 20- 21, objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

21. Claims 10-18 and 20-21 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.


Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANGELICA RUIZ whose telephone number is (571)570-3158. The examiner can normally be reached on 8:00 a.m. to 4:30 p.m., ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ali can be reached on (571) 272-4105. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AR


MOHAMMAD ALI
SUPERVISORY PATENT EXAMINER